Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

35-44 (cancelled)

45. (presently amended) A method of magnetic resonance investigation of a sample, preferably of a human or non-human animal body, said method comprising:

(i) forming a solid nuclear spin polarised~~ing~~ MR imaging agent by irradiating a solid compound containing a non zero nuclear spin nucleus selected from ^{13}C or ^{15}N and having a singlet electronic ground state with light to generate an excited polarized triplet electronic state of said solid compound and transforming electronic polarization of said solid compound into a nuclear spin polarization ~~a solid MR imaging agent~~;

(ii) dissolving said nuclear spin polarised MR imaging agent in an aqueous medium;

~~(ii)~~(iii) administering the nuclear spin polarised MR imaging agent to said sample;

~~(iii)~~(iv) exposing said sample to a radiation at a frequency selected to excite nuclear spin transitions in the spin polarised nuclei of the MR imaging agent;

~~(iv)~~(v) detecting magnetic resonance signals from said sample; and

~~(v)~~(vi) generating an image, dynamic flow data, diffusion data, perfusion data, physiological data or metabolic data from said detected signals.~~,~~

~~wherein said polarising step (i) is carried out by~~

~~(a)spin refrigeration, or by,~~

~~(b)irradiating with circularly polarised light.~~

46-47 (cancelled)

48. (presently amended) The method of claim ~~46~~45 wherein the solution formed retains its polarisation in frozen form.

49-51 (cancelled)

52. (presently amended) A process for the preparation of a nuclear spin polarised MR imaging agent, said process comprising:

irradiating a solid compound having a singlet electronic ground state and containing a non zero nuclear spin nucleus selected from ^{13}C or ^{15}N with light to generate an excited polarized triplet electronic state of said ~~agent~~ solid compound;

transforming electronic polarization of said solid compound into a nuclear spin polarization ~~in a soluble solid MR imaging agent~~ to form a nuclear spin polarised MR imaging agent, optionally dissolving said MR imaging agent in an aqueous medium ~~(preferably a physiologically tolerable medium)~~, and optionally storing said polarised MR imaging agent at a reduced temperature and at a magnetic field of greater than 10 mT.

53. (previously presented) The process of claim 52 wherein said reduced temperature is liquid nitrogen temperature or below.

54. (previously presented) The process of claim 52 wherein said reduced temperature is liquid helium temperature.

55. (previously presented) The process of claim 52 wherein said magnetic field is greater than 2T.

56. (previously presented) A process for the preparation of a polarised electronic triplet state of a solid compound having a singlet electronic ground state said process comprising irradiating said compound in a solid state with a first radiation of a wavelength selected to excite said compound from a ground singlet electronic state to an excited singlet electronic state and with a positively or negatively, circularly polarised second radiation of a wavelength selected to excite said compound from the lowest triplet electronic state to the next-to-lowest triplet electronic state.

57. (previously presented) The process of claim 56 wherein said compound is a water-soluble compound containing at least one non-zero nuclear spin nucleus.

58-60 (cancelled)

61. (presently amended)— A water-soluble MR imaging agent compound:

(i) containing a nuclear spin polarised I=½ nucleus;

(ii) having a molecular weight below 1000D

(iii) containing a cyclic chromophore; and

(iv) having an nmr spectrum for said I=½ nucleus having a linewidth of less than 1~~100~~ Hz.

62-63 (cancelled)

64. (presently amended) ~~A composition of claim 62 wherein said~~ A physiologically tolerable MR imaging composition comprising the nuclear spin polarised imaging agent of claim 61 dissolved in water together with one or more physiologically tolerable excipients, said imaging agent containing nuclei of a I=½ isotope characterized in that said nuclei are polarised such that their nmr signal intensity is equivalent to a signal intensity achievable in a magnetic field of at least 450 T.

65-66 (cancelled)

67. (new) The process of claim 52 wherein the aqueous medium is a physiologically tolerable medium.